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**INFANT HOLDER**

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## INFANT HOLDER

### BACKGROUND

[0001] Olympic Medical's Circumstraint™ infant holder is widely used for infant circumcision. An infant lies flat with his head and feet at the same elevation in the Circumstraint™ and his legs are strapped straight, extending below his torso, in an unnatural position.

### DRAWINGS

[0002] Fig. 1 is a perspective view illustrating an infant holder according to one embodiment of the invention.

[0003] Fig. 2 is a perspective view of the infant holder of Fig. 1 holding an infant.

[0004] Figs. 3 and 4 are plan and elevation views, respectively, of the infant holder of Fig. 1.

[0005] Figs. 5 and 6 are section views of the infant holder of Fig. 1 taken along the lines 5-5 and 6-6, respectively, in Fig. 3.

[0006] Fig. 7 is a perspective view illustrating an infant holder according to a second embodiment of the invention in which the holder includes an instrument shelf.

### DESCRIPTION

[0007] Embodiments of the invention are directed to an infant holder for circumcision and other medical procedures that helps an infant to lie in a natural, comfortable position with legs flexed at the hips and knees and rotated at the hips, while still allowing the doctor good access to the infant's groin area. In one embodiment, the holder is configured such that the thighs extend out from the torso at about a 90° angle and incline relative to the torso at about a 30° angle. Each calf lies substantially perpendicular to the thigh. Preferably, the infant's head is raised about 10° above his feet to help prevent aspiration. Broad straps with Velcro® or other suitable closures are included to restrain both the thigh and the calf.

[0008] Figs. 1-6 illustrate an infant holder 10 constructed according to one embodiment of the invention. Referring to Figs. 1-6, the body 12 of holder 10 includes a recess 14 configured to receive the head and torso of an infant and

recesses 16 configured to receive the legs of the infant. Torso recess 14 includes a base 18 and sidewalls 20. Each leg recess 16 includes a base 22 and sidewalls 24. Leg recesses 16 will also be described with reference to a longitudinal axis 26 that extends lengthwise along torso recess 14 and a transverse axis 28 that is perpendicular to longitudinal axis 26 (transverse axis 28 is shown in Fig. 6).

[0009] As best seen in Fig. 5, base 18 of torso recess 14 is inclined at an angle 29 which, in the embodiment illustrated in the figures, is about 10°. Inclining base 18 keeps the infant's head above his feet to help prevent aspiration. The incline, however, should be slight so that the infant's head and torso do not unduly pressure the legs. It is expected that an incline angle 29 in the range of 5° to 20° will provide an acceptable degree of protection against aspiration without unduly pressuring the infant's legs. While other specific details of torso recess 14, base 18 and sidewalls 20 are not part of the inventive features in holder 10, these structural features should be sized and shaped to comfortably support a typical infant.

[0010] Leg recesses 16 are positioned near the lower portion of torso recess 14. As best seen in Fig. 3, an upper/thigh portion 30 of each leg recess 16 extends away from torso recess 14 at an angle 31 which, in the embodiment illustrated in the figures, is about 90°. That is to say, the center line 32 of upper portion 30 intersects longitudinal axis 26 at an angle 31 which, preferably, is about 90°. In addition, as best seen in Fig. 6, leg recess base 22 is inclined relative to torso recess base 18 in upper portion 30 at an angle 33 which, in the embodiment illustrated in the figures, is about 30°. This configuration allows the infant's hips to flex more naturally when the infant is supported in holder 10. It is expected that a hip bend angle 31 in the range of 70° to 120° and a hip incline angle 33 in the range of 20° to 50° will mimic the natural flexure in the hips of most infants.

[0011] A lower/calf portion 34 of each leg recess 16 extends away from upper/thigh portion 30 at an angle 35 which, in the embodiment illustrated in the figures, is about 90°. That is to say, the center line 36 of lower/calf portion 34 intersects the center line 32 of upper/thigh portion 30 at an angle 35 which, preferably, is about 90°. As best seen in Fig. 5, lower/calf portion 34 also extends down from upper/thigh portion 30 at an angle 37 of about 10°. This configuration

configuration allows the infant's knees to flex more naturally when the infant is supported in holder 10 while keeping the infant's feet clear of the groin area. It is expected that the line of action of the lower/calf portion will be in the direction of line 36 so that knee bend angle 35 should be the same as hip bend angle 31.

[0012] Upper/thigh portion 30 and lower/calf portion 34 are sized and shaped to comfortably fit a typical infant. For example, base 22 and sidewalls 24 of each leg recess 16 form a concave recession along upper/thigh portion 30 to cradle the upper thighs. Base 22 and sidewalls 24 may transition to a more rectilinear cross section with a flat base along lower/calf portion 34 where only the weight of the lower legs is supported. Base 22 along lower/calf portion 34 should remain inclined at angle 33 to help keep the infant's legs in a natural position.

[0013] Holder 10 will typically be fitted with leg restraints 38 and a torso restraint 40. In the embodiment illustrated in the figures, each leg restraint 38 is constructed as a strap 42 that runs through a pair of opposing slots 44 positioned in or along leg recess 16. Similarly, torso restraint 40 is constructed as a strap 46 that runs through a pair of opposing slots 48 positioned along torso recess 14. A broad torso strap 46 is preferred to swaddle the infant for comfort and, if necessary, restrain his arms. The straps are secured with Velcro® or some other suitable fastener.

[0014] While holder 10 may be constructed from any suitable structurally stable material as one or more pieces, it is expected that holder 10 will typically be constructed as a one-piece molded plastic unit that is durable but easy to clean and store.

[0015] In a second embodiment, illustrated in Fig. 7, infant holder 10 includes a ledge 50 for supporting a circumcision instrument or other items. Ledge 50 is formed at the bottom of holder 10 as a stepped up extension of base 18.

[0016] Other embodiments are possible. For example, a recess may not be necessary or desirable in some applications to support the infant's torso. Hence, torso recess 14 could be replaced with an un-recessed torso support feature that transitions down to leg recesses 16. In some circumstances, it may be desirable to extend the cradling feature of leg recesses 16 across the infant's lower torso/buttocks to provide added support, particularly if a steeper incline is necessary for a particular medical procedure. It should be understood, therefore,

that the embodiments shown in the figures and described above illustrates but do not limit the invention which is defined in the following claims..